CLAIMS

1. An access station for wireless communications, the access station comprising:

a plurality of medium access controllers;

a plurality of baseband units, each respective baseband unit of the plurality of baseband units associated with a respective medium access controller of the plurality of medium access controllers; and

medium access controller coordination logic operatively coupled to the plurality of medium access controllers and to the plurality of baseband units, the medium access controller coordination logic adapted to coordinate the plurality of medium access controllers such that the plurality of baseband units do not cause a signal transmission during a signal reception.

2. The access station as recited in claim 1, further comprising:

a plurality of electronic cards;

wherein each respective medium access controller of the plurality of medium access controllers and each respective associated baseband unit of the plurality of baseband units are jointly located on a respective electronic card of the plurality of electronic cards.

3. The access station as recited in claim 1, further comprising:

an Ethernet switch/router that is operatively coupled to each medium access controller of the plurality of medium access controllers.

4. The access station as recited in claim 1, further comprising:

a plurality of radio frequency parts, each respective radio frequency part of the plurality of radio frequency parts operatively coupled to a corresponding respective baseband unit of the plurality of baseband units.

5. The access station as recited in claim 4, further comprising:

at least one beamformer operatively coupled to the plurality of radio frequency parts; and

at least one antenna array operatively coupled to the at least one beamformer.

6. The access station as recited in claim 1, wherein each respective medium access controller of the plurality of medium access controllers and each respective associated baseband unit of the plurality of baseband units are further associated with a respective access point of a plurality of access points that are established by the access station.

7. The access station as recited in claim 1, wherein the medium access controller coordination logic is further adapted to coordinate the plurality of medium access controllers such that the plurality of baseband units do not cause a signal transmission during a signal reception on a per-channel basis.

8. The access station as recited in claim 1, wherein the plurality of baseband units forward a plurality of receive indicators to the medium access controller coordination logic, and the plurality of medium access controllers accept a plurality of constructive receive indicators from the medium access controller coordination logic; and wherein the medium access controller coordination logic is further adapted to coordinate the plurality of medium access controllers by analyzing the plurality of receive indicators and by producing the plurality of constructive receive indicators responsive to the analyzing.

9. An access station for wireless communications, the access station comprising:

a wireless input/output (I/O) unit that is configured to establish a plurality of access points; and

signal transmission/reception coordination logic that is capable of ascertaining that an access point of the plurality of access points is receiving a signal and that is adapted to restrain at least one other access point of the plurality of access points from transmitting another signal responsive to the ascertaining that the access point is receiving the signal.

10. The access station as recited in claim 9, wherein the plurality of access points established by the wireless I/O unit are co-located.

11. The access station as recited in claim 9, wherein the wireless I/O unit operates in accordance with at least one IEEE 802.11 standard.

12. The access station as recited in claim 9, wherein the signal received by the access point comprises at least one uplinked packet.

13. The access station as recited in claim 9, wherein the signal received by the access point comprises at least a portion of an uplinked packet.

14. The access station as recited in claim 13, wherein the at least a portion of the uplinked packet comprises at least part of a preamble of the uplinked packet.

15. The access station as recited in claim 9, wherein the signal transmission/reception coordination logic is further adapted to restrain at least two other access points of the plurality of access points from transmitting signals responsive to the ascertaining that the access point of the plurality of access points is receiving the signal.

16. The access station as recited in claim 9, wherein the signal transmission/reception coordination logic is further adapted to restrain the at least one other access point of the plurality of access points from transmitting a downlink signal responsive to the ascertaining that the access point of the plurality of access points is receiving the signal.

17. The access station as recited in claim 9, wherein the signal transmission/reception coordination logic is further adapted to restrain the at least one other access point of the plurality of access points from transmitting the other signal on a first channel responsive to the ascertaining that the access point of the plurality of access points is receiving the signal on a second different channel.

18. The access station as recited in claim 9, wherein the signal transmission/reception coordination logic is further capable of monitoring the plurality of access points.

19. The access station as recited in claim 18, wherein the signal transmission/reception coordination logic is capable of monitoring the plurality of access points to detect received signals.

20. The access station as recited in claim 9, wherein the signal transmission/reception coordination logic is further adapted to restrain the at least one other access point of the plurality of access points while the access point is receiving the signal.

21. The access station as recited in claim 9, wherein each access point of the plurality of access points corresponds to a communication beam of a plurality of communication beams that emanate from the access station.

22. The access station as recited in claim 9, wherein each access point of the plurality of access points is associated with a medium access controller/baseband unit pair.

23. The access station as recited in claim 9, wherein the signal transmission/reception coordination logic comprises medium access controller coordination logic.

24. The access station as recited in claim 23, wherein the medium access controller coordination logic is physically distributed to link two or more access stations.

25. The access station as recited in claim 9, wherein the signal transmission/reception coordination logic operates at a baseband level.

26. The access station as recited in claim 9, wherein the signal transmission/reception coordination logic operates at a radio frequency (RF) level.

27. A method for a system, the method comprising:

ascertaining that an access point of a plurality of access points is receiving a signal; and

restraining at least one other access point of the plurality of access points from transmitting a signal responsive to the ascertaining.

28. The method for a system as recited in claim 27, further comprising: monitoring the plurality of access points to detect the signal.

29. The method for a system as recited in claim 27, wherein the ascertaining comprises ascertaining that the access point of a plurality of co-located access points is receiving the signal.

30. The method for a system as recited in claim 27, wherein the restraining comprises restraining at least two other access points of the plurality of access points from transmitting signals.

31. The method for a system as recited in claim 27, wherein the restraining comprises restraining the at least one other access point at least while the access point is receiving the signal.

32. The method for a system as recited in claim 27, wherein the restraining comprises restraining the at least one other access point for at least a predetermined timer period that starts when the access point is ascertained to be receiving the signal.

33. The method for a system as recited in claim 27, wherein the ascertaining comprises detecting that the access point is receiving the signal by monitoring at least one indicator from a baseband unit that is associated with the access point.

34. The method for a system as recited in claim 27, wherein the restraining comprises instructing a medium access controller that the signal is being received, the medium access controller associated with the at least one other access point of the plurality of access points.

35. An apparatus comprising:

a plurality of inputs adapted to accept a plurality of receive indicators;

logic capable of combining the plurality of receive indicators to produce a plurality of constructive receive indicators; and

a plurality of outputs adapted to provide the plurality of constructive receive indicators.

36. The apparatus as recited in claim 35, wherein the apparatus comprises a multi-media access controller (MAC) controller (MMC).

37. The apparatus as recited in claim 35, wherein both the plurality of inputs and the plurality of outputs number three, six, or thirteen.

38. The apparatus as recited in claim 35, wherein the logic comprises at least one "OR" gate.

39. The apparatus as recited in claim 35, wherein the logic comprises at least one of hardware, software, and firmware.

40. The apparatus as recited in claim 35, wherein the logic is adapted to segment the plurality of receive indicators using a channel mapping prior to producing the plurality of constructive receive indicators, the plurality of constructive receive indicators thereby being segmented by the channel mapping.

41. The apparatus as recited in claim 35, wherein the logic includes at least one timing function that activates when a receive indicator of the plurality of receive indicators affirmatively indicates that a signal is being received.

42. The apparatus as recited in claim 35, further comprising:

another plurality of inputs adapted to accept receive-indicator enable information that stipulates which receive indicators of the plurality of receive indicators are to be combined by the logic to produce the plurality of constructive receive indicators.

43. The apparatus as recited in claim 35, wherein the plurality of inputs are further adapted to accept the plurality of receive indicators from a plurality of baseband units.

44. The apparatus as recited in claim 35, wherein the plurality of outputs are further adapted to provide the plurality of constructive receive indicators to a plurality of medium access controllers.

45. A system for wireless communications, the system comprising:

a plurality of respective baseband units capable of forwarding a plurality of respective indicators that indicate when a corresponding respective baseband unit is receiving a signal;

medium access controller coordination logic capable of accepting the plurality of respective indicators and adapted to combine the plurality of respective indicators to produce a plurality of constructive indicators that indicate that one or more respective baseband units of the plurality of respective baseband units is receiving a signal; and

a plurality of respective medium access controllers capable of accepting the plurality of constructive indicators, each respective medium access controller of the plurality of respective medium access controllers associated with a respective baseband unit of the plurality of respective baseband units.

46. The system as recited in claim 45, further comprising:

a plurality of respective electronic cards;

wherein each respective medium access controller of the plurality of respective medium access controllers and each associated respective baseband unit of the plurality of respective baseband units are located on a respective electronic card of the plurality of respective electronic cards.

47. The system as recited in claim 45, further comprising:

an Ethernet switch/router that is coupled to each respective medium access controller of the plurality of respective medium access controllers to exchange packets between each respective medium access controller and the Ethernet switch/router.

48. The system as recited in claim 47, wherein the Ethernet switch/router is coupled to an Ethernet backbone.

49. The system as recited in claim 47, wherein the Ethernet switch/router comprises at least one central processing unit (CPU), one or more memories, and software for performing packet switching and/or routing functions.

50. The system as recited in claim 45, further comprising:

a plurality of respective radio frequency parts, each respective radio frequency part of the plurality of respective radio frequency parts coupled to a corresponding respective baseband unit of the plurality of respective baseband units for transferring packets therebetween.

51. The system as recited in claim 50, further comprising:

at least one beamformer coupled to the plurality of respective radio frequency parts; and

at least one antenna array coupled to the at least one beamformer.

52. The system as recited in claim 51, wherein when a signal is received at the system an incoming packet propagates from the at least one antenna array, to the at least one beamformer, to a respective radio frequency part of the plurality of respective radio frequency parts, and to a corresponding respective baseband unit of the plurality of respective baseband units; and wherein when a signal is transmitted from the system an outgoing packet propagates from the corresponding respective baseband unit, to the respective radio frequency part, to the at least one beamformer, and to the at least one antenna array.

53. The system as recited in claim 51, wherein the at least one beamformer and the at least one antenna array jointly produce a plurality of respective communication beams, each respective communication beam of the plurality of respective communication beams corresponding to a respective medium access controller of the plurality of respective medium access controllers and to an associated respective baseband unit of the plurality of respective baseband units.

54. The system as recited in claim 51, wherein the at least one antenna array comprises at least one phased array of antennas.

55. The system as recited in claim 51, wherein the at least one beamformer comprises at least one of a tuned vector modulator (multiplier); a Butler matrix; a Rotman, Honda, or other lens; a canonical beamformer; a digital beamformer; and a lumped-element beamformer with static or variable inductors and capacitors.

56. The system as recited in claim 45, wherein each respective medium access controller of the plurality of respective medium access controllers and each associated respective baseband unit of the plurality of respective baseband units are jointly associated with a respective access point of a plurality of respective access points that are established by the system.

57. The system as recited in claim 45, wherein the medium access controller coordination logic is further adapted to combine the plurality of respective indicators to produce the plurality of constructive indicators on a per-channel basis.

58. The system as recited in claim 45, wherein the medium access controller coordination logic is further adapted to combine the plurality of respective indicators to produce the plurality of constructive indicators using logical "OR" functionality.

59. The system as recited in claim 45, wherein at least one respective indicator of the plurality of respective indicators comprises at least one of a clear channel assessment (CCA) and a busy/non-busy indication.

60. The system as recited in claim 45, wherein at least one respective indicator of the plurality of respective indicators is based on one or more of energy signals, cross-correlation signals, data signals, and other transmit and/or control signals.

61. The system as recited in claim 45, wherein the medium access controller coordination logic is further adapted to combine the plurality of respective indicators to produce the plurality of constructive indicators in accordance with a plurality of respective indicator enables that correspond to the plurality of respective indicators.

62. The system as recited in claim 61, further comprising:

scanning logic that scans received signals across a plurality of respective communication beams emanating from the system;

wherein the plurality of respective indicator enables are controlled, at least partially, using the scanning logic.

63. The system as recited in claim 62, wherein the scanning logic comprises part of the medium access controller coordination logic.

64. The system as recited in claim 61, further comprising:

a timer that is started when a respective indicator of the plurality of respective indicators begins indicating that a signal is being received and that is tolled when the respective indicator ceases indicating that the signal is being received;

wherein if the timer expires prior to being tolled, a respective indicator enable of the plurality of respective indicator enables that corresponds to the respective indicator is disabled.

65. The system as recited in claim 64, wherein a duration of the timer is set equal to or approximately equal to a maximum packet length.

66. The system as recited in claim 45, further comprising:

a timer that is started when a constructive indicator of the plurality of constructive indicators begins indicating that a signal is being received by one or more respective baseband units of the plurality of respective baseband units and that is tolled when the constructive indicator ceases indicating that the signal is being received;

wherein if the timer expires prior to being tolled, an error handling procedure is commenced.

67. The system as recited in claim 45, wherein the system comprises an access station.

68. The system as recited in claim 45, wherein the medium access controller coordination logic is distributed across at least two access stations.

69. A system for wireless communications, the system comprising:

a first baseband unit that is capable of forwarding a first receive indicator;

a first medium access controller that is associated with the first baseband unit;

a second baseband unit that is capable of forwarding a second receive indicator;

a second medium access controller that is associated with the second baseband unit; and

medium access controller coordination logic that is capable of accepting the first receive indicator and the second receive indicator, the medium access controller coordination logic adapted to detect that the first receive indicator is affirmatively indicating that the first baseband unit is receiving a signal, the medium access controller coordination logic further adapted to provide a constructive receive indicator responsive to the first receive indicator that is detected to be affirmatively indicating that the first baseband unit is receiving the signal;

wherein the constructive receive indicator is provided to the second medium access controller.

70. The system as recited in claim 69, wherein (i) first signals corresponding to the first baseband unit and the first medium access controller and (ii) second signals corresponding to the second baseband unit and the second medium access controller are transceived on one channel.

71. The system as recited in claim 69, wherein the system is configured to directly provide the constructive receive indicator to the second medium access controller from the medium access controller coordination logic.

72. The system as recited in claim 69, wherein the system is configured to indirectly provide the constructive receive indicator to the second medium access controller from the medium access controller coordination logic.

73. The system as recited in claim 69, wherein the medium access controller coordination logic is further adapted to produce the constructive receive indicator from the first receive indicator and the second receive indicator using at least one logical "OR" operation.

74. The system as recited in claim 69, wherein the system comprises at least one access station.

75. The system as recited in claim 69, wherein the medium access controller coordination logic is distributed across more than one access station via at least one communication link.

76. A system for wireless communications, the system comprising:

medium access controller coordination logic capable of accepting a plurality of respective indicators from a plurality of respective baseband units, the medium access controller coordination logic adapted to combine the plurality of respective indicators to produce a plurality of constructive indicators that indicate that one or more respective baseband units of the plurality of respective baseband units is receiving a signal; and

a plurality of respective medium access controllers capable of accepting the plurality of constructive indicators, each respective medium access controller of the plurality of respective medium access controllers associated with a respective baseband unit of the plurality of respective baseband units.

77. A system for wireless communications, the system comprising:

a plurality of respective baseband units capable of forwarding a plurality of respective indicators that indicate when a corresponding respective baseband unit is receiving a signal; and

medium access controller coordination logic capable of accepting the plurality of respective indicators, the medium access controller coordination logic adapted to combine the plurality of respective indicators to produce a plurality of constructive indicators that indicate that one or more respective baseband units of the plurality of respective baseband units is receiving a signal.

78. The system as recited in claim 77, wherein the medium access controller coordination logic is further adapted to provide the plurality of constructive indicators to a plurality of medium access controllers.

79. A system for wireless communications, the system comprising:

medium access controller coordination logic capable of accepting a plurality of respective receive indicators from a plurality of respective baseband units; the medium access controller coordination logic adapted to combine the plurality of respective receive indicators to produce a plurality of constructive receive indicators, each constructive receive indicator of the plurality of constructive receive indicators indicating that one or more respective baseband units of the plurality of respective baseband units is receiving a signal; the medium access controller coordination logic further adapted to provide the plurality of constructive receive indicators to a plurality of medium access controllers.

80. A method comprising:

monitoring a plurality of respective indicators acquired from a plurality of respective baseband units;

detecting whether at least one respective indicator of the plurality of respective indicators is affirmatively indicating that a signal is being received; and

if so, providing at least one instruction to at least two medium access controllers of a plurality of respective medium access controllers, the at least one instruction restraining the at least two medium access controllers from causing a transmission.

81. The method as recited in claim 80, further comprising:

if no respective indicator of the plurality of respective indicators is affirmatively indicating that a signal is being received, then continuing the monitoring.

82. The method as recited in claim 80, wherein the monitoring comprises monitoring a respective indicator of the plurality of respective indicators as acquired from each respective baseband unit of the plurality of respective baseband units.

83. The method as recited in claim 80, wherein the detecting comprises detecting whether respective indicators of the plurality of respective indicators are affirmatively indicating that signals are being received via respective baseband units of the plurality of respective baseband units.

84. The method as recited in claim 80, wherein the providing comprises providing the at least one instruction to the at least two medium access controllers of the plurality of respective medium access controllers, the at least one instruction restraining the at least two medium access controllers from causing transmissions in conjunction with at least two associated respective baseband units of the plurality of respective baseband units.

85. The method as recited in claim 80, wherein at least one of the monitoring, the detecting, and the providing are performed on a per-channel basis.

86. An access station comprising:

medium access controller coordination logic, the medium access controller coordination logic configured to perform actions comprising:

accepting a plurality of respective receive indicators from a plurality of respective baseband units;

mapping at least a portion of the plurality of respective receive indicators into at least two channel-based groups;

combining respective receive indicators in accordance with the mapping into each channel-based group of the at least two channel-based groups to produce a plurality of respective constructive receive indicators; and

providing the plurality of respective constructive receive indicators to a plurality of respective medium access controllers.

87. The access station as recited in claim 86, wherein the medium access controller coordination logic is configured to perform a further action comprising:

masking non-enabled respective receive indicators of the plurality of respective receive indicators to identify enabled respective receive indicators;

wherein the at least a portion of the plurality of respective receive indicators of the mapping comprises the enabled respective receive indicators.

88. The access station as recited in claim 86, wherein the action of combining comprises the actions of:

combining the respective receive indicators in accordance with the mapping into each channel-based group into a channel-based receive indicator for each channel-based group of the at least two channel-based groups; and

producing the plurality of respective constructive receive indicators using (i) the channel-based receive indicator in accordance with the mapping into each channel-based group and (ii) respective receive indicators of the plurality of respective receive indicators.

89. An arrangement for signal communication coordination, comprising:

means for monitoring a plurality of access points;

means for ascertaining that an access point is receiving a signal; and

means for restraining at least one other access point from transmitting a signal responsive to the means for ascertaining.

90. The arrangement as recited in claim 89, wherein the at least one other access point is located on an access station with the access point that is receiving the signal.

91. The arrangement as recited in claim 89, wherein the at least one other access point is located on a different access station from that of the access point that is receiving the signal.

92. The arrangement as recited in claim 89, wherein the arrangement comprises at least one access station.

93. The arrangement as recited in claim 89, wherein the arrangement comprises one or more processor-accessible media.

94. A system for wireless communications, the system comprising:

a first access station that is capable of transceiving communications with remote clients;

a second access station that is capable of transceiving communications with remote clients; and

signal transmission/reception coordination logic that is linked to the first access station and the second access station and is adapted to coordinate signal transmissions and/or receptions of the first access station with regard to signal transmission and/or receptions of the second access station.

95. The system as recited in claim 94, wherein the signal transmission/reception coordination logic is at least one of co-located with and located within the first access station or the second access station.

96. The system as recited in claim 94, wherein the signal transmission/reception coordination logic is linked to the first access station and the second access station using a wired link.

97. The system as recited in claim 94, wherein the signal transmission/reception coordination logic is further adapted to permit signal transmission at the first access station when the first access station is receiving a signal that is sent from the second access station or that is being sent to the second access station by a remote client.

98. The system as recited in claim 94, wherein the signal transmission/reception coordination logic is further adapted to restrain a signal transmission from the second access station when the first access station is transmitting.

99. The system as recited in claim 98, wherein the signal transmission from the second access station can potentially interfere with the transmitting from the first access station.

100. The system as recited in claim 94, wherein the signal transmission/reception coordination logic is further adapted to restrain a signal transmission from the second access station when a remote client is awaiting a response from the first access station based on a frame that the remote client previously sent to the first access station.

101. The system as recited in claim 94, wherein the signal transmission/reception coordination logic comprises medium access controller coordination logic that is distributed across the first access station and the second access station.

102. The system as recited in claim 94, wherein the signal transmission/reception coordination logic operates at least on a baseband level.

103. An apparatus comprising:

signal transmission/reception coordination logic that accepts as inputs receive information for a plurality of access points and produces as outputs combined receive information, the signal transmission/reception coordination logic adapted to combine the receive information according to at least one coordination function and responsive to one or more selectivity factors.

104. The apparatus as recited in claim 103, wherein the one or more selectivity factors include channel selectivity.

105. The apparatus as recited in claim 103, wherein the one or more selectivity factors include overlapping subnet selectivity.

106. The apparatus as recited in claim 103, wherein the one or more selectivity factors include packet-content-based selectivity.

107. An access station for wireless communications in a wireless system, the access station comprising:

a wireless input/output (I/O) unit that is configured to establish a plurality of access points; and

signal transmission/reception coordination logic that is capable of ascertaining that a first access point of the plurality of access points is receiving a first signal on a first channel and that is adapted to restrain a second access point of the plurality of access points from transmitting a second signal on a second channel based on the ascertaining that the first access point is receiving the first signal with an ongoing transmission on a third channel to prevent distortion to other signals being wirelessly communicated in the wireless system.

108. The access station as recited in claim 107, wherein the prevented distortion comprises inter-modulation distortion.

109. An access station for wireless communications in a wireless system, the access station comprising:

a wireless input/output (I/O) unit that is configured to establish at least one access point; and

signal transmission/reception coordination logic that is capable of restraining transmission from the at least one access point when another access point is expecting a short-term response to a frame that was transmitted by the other access point.

110. The access station as recited in claim 109, wherein the short-term response to the frame comprises an immediate response to the frame.

111. The access station as recited in claim 109, wherein the other access point is also established by the wireless I/O unit of the access station.

112. The access station as recited in claim 109, wherein the other access point is established by a different access station.

113. The access station as recited in claim 109, wherein the at least one access point and the other access point are operating on a same channel.

114. The access station as recited in claim 109, wherein the at least one access point and the other access point are operating on different channels.

115. The access station as recited in claim 114, wherein the different channels are adjacent.